

08feb06 15:15:16 User259284 Session D3484.2

File 2:INSPEC 1898-2006/Jan W3
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Set	Items	Description
S1	460	CI=TISI
S2	115	CI=TASI
S3	28	CI=ZRSI
S4	587	CI=WSI
S5	724	CI=NISI
S6	13235	S1:S5 OR SILICID? OR SALICID? OR POLYCID?
S7	948	'SILICIDATION'
S8	593	FILL?????(3N)TRENCH???????
S9	1	TRENCHFILL?
S10	594	S8:S9
S11	678	TRENCH?????(4N) (INSULAT? OR OXID? OR DIOXID? OR SIO OR O - OR O2 OR SIO2 OR SILICA?????)
S12	13235	S1:S7
S13	1	10AND11AND12
S14	0	S7 AND S10 AND S11
S15	0	S7 AND S10
S16	2	S7 AND S11
S17	135	INSULAT?????(4N)TRENCH???????
S18	1113	INSULAT?????(4N)FILL???????
S19	621	TRENCH?????(4N)FILL???????
S20	7	17AND18AND19
S21	7	17AND18
S22	13	17AND19
S23	8	18AND19
S24	14	S21:S23
S25	0	S24 AND S1:S7

8feb06 15:22:56 User259284 Session D3484.3

SYSTEM:OS - DIALOG OneSearch

File 348:EUROPEAN PATENTS 1978-2006/Jan W05

File 349:PCT FULLTEXT 1979-2006/UB=20060105,UT=20051229

Set	Items	Description
S1	1425	TRENCH?????(5N) FILL??????/TI,AB,CM
S2	9772	(INSULAT???? OR DIELEC?????? OR OXID???? OR NONCONDUCT? OR DIOXID???? OR SILICA????? OR SIO OR SIO2) (5N) FILL??????/TI,AB,CM
S3	7408	(INSULAT???? OR DIELEC?????? OR OXID???? OR NONCONDUCT? OR DIOXID???? OR SILICA????? OR SIO OR SIO2) (5N) (BOTTOM???? OR LOWEST OR LOWER) /TI,AB,CM
S4	3062	FILL??????(5N) (BOTTOM???? OR LOWEST OR LOWER) /TI,AB,CM
S5	1425	FILL??????(5N) TRENCH??????/TI,AB,CM
S6	956	TRENCH??????(5N) (BOTTOM???? OR LOWEST OR LOWER) /TI,AB,CM
S7	35	1AND2AND3AND4AND5AND6
S8	38	1AND2AND3AND4AND5
S9	35	1AND2AND3AND4AND6
S10	49	1AND2AND4AND5AND6
S11	45	1AND3AND4AND5AND6
S12	35	2AND3AND4AND5AND6
S13	62	S7:S12
S14	1452	TRENCH??????(5N) (INSULAT? OR OXID????? OR DIOXID? OR SIO OR O OR O2 OR SIO2 OR SILICA?????) /TI,AB,CM
S15	42	13AND14
S16	5	S15 AND (SILICID? OR POLYCID? OR SALICID? OR TISI??? OR ZR-SI??? OR TASI??? OR WSI??? OR NISI??? OR COSI??) /TI,AB,CM

? map pn

SearchSave "SD818" stored

1 Select Statement, 9 Search Term(s)

? b 350;ex

08feb06 15:31:19 User259284 Session D3484.4

File 350:Derwent WPIX 1963-2006/UD,UM &UP=200609

S1 4 Serial: SD818

? map pn

SearchSave "SD819" stored

1 Select Statement, 13 Search Term(s)

? rank pn

Temp SearchSave "TD316" stored

? map pn/ct=

SearchSave "SD820" stored

1 Select Statement, 13 Search Term(s)

? b 342;ex

08feb06 15:32:24 User259284 Session D3484.5

File 342:Derwent Patents Citation Indx 1978-05/200608
(c) 2006 Thomson Derwent

Set	Items	Description
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Executing SD820

Set	Items	Description
S1	2	CT=EP 1176643 + CT=JP 2002124674 + CT=TW 522569 + CT=US 20-030011027 + CT=US 20050167695 + CT=US 20050167742 + CT=US 200-50199932 + CT=US 6445035 + CT=US 6638826 + CT=WO 200565385 + -CT=WO 200574659 + CT=WO 200576362 + CT=WO 200593836

? map ct/pn=

SearchSave "SD821" stored
4 Select Statements, 42 Search Term(s)
SearchSave SD821

1 SearchSave(s), 42 Search Term(s)

? b 350 347 344;ex

08feb06 15:33:33 User259284 Session D3484.6

YSTEM:OS - DIALOG OneSearch

File 350:Derwent WPIX 1963-2006/UD,UM &UP=200609

File 347:JAPIO Nov 1976-2005/Oct(Updated 060203)

File 344:Chinese Patents Abs Jan 1985-2006/Jan

Executing SD821

Set	Items	Description
S1	47	S1:S3
S2	1	S1 AND (SILICID? OR POLYCID? OR SALICID? OR TISI??? OR ZRS-I??? OR TASI??? OR WSI??? OR NISI??? OR COSI??)
S3	1	S1 AND REACT??????
S4	2	S1 AND (SI OR SILICON) (2N) (METAL??????? OR W OR TI OR ZR OR TA OR W OR TUNGSTEN OR TANTALUM OR NI OR NICKEL OR COBALT)
S5	47	S1:S4
S6	3	S2:S4
S7	6	S1 AND INSULAT?????? (5N) TRENCH??????

08feb06 15:43:09 User259284 Session D3484.7

SYSTEM:OS - DIALOG OneSearch

File 350:Derwent WPIX 1963-2006/UD,UM &UP=200609
 File 347:JAPIO Nov 1976-2005/Oct(Updated 060203)
 File 344:Chinese Patents Abs Jan 1985-2006/Jan
 File 23:CSA Technology Research Database 1963-2006/Jan
 File 2:INSPEC 1898-2006/Jan W3
 File 6:NTIS 1964-2006/Jan W5
 File 8:Ei Compendex(R) 1970-2006/Jan W5
 File 14:Mechanical and Transport Engineer Abstract 1966-2006/Jan
 File 25:Weldasearch-19662006/Jan (c) 2006 TWI Ltd
 File 31:World Surface Coatings Abs 1976-2006/Jan
 File 33:Aluminium Industry Abstracts 1966-2006/Jan
 File 34:SciSearch(R) Cited Ref Sci 1990-2006/Jan W5
 File 35:Dissertation Abs Online 1861-2006/Jan
 File 36:MetalBase 1965-20060206
 File 46:Corrosion Abstracts 1966-2006/Jan
 File 56:Computer and Information Systems Abstracts 1966-2006/Jan
 File 57:Electronics & Communications Abstracts 1966-2006/Jan
 File 60:ANTE: Abstracts in New Tech & Engineer 1966-2006/Jan
 File 61:Civil Engineering Abstracts: 1966-2006/Jan
 File 63:Transport Res(TRIS) 1970-2006/Dec
 File 64:Environmental Engineering Abstracts 1966-2006/Jan
 File 65:Inside Conferences 1993-2006/Feb W1
 File 68:Solid State & Superconductivity Abstracts 1966-2006/Jan
 File 81:MIRA - Motor Industry Research 2001-2006/Dec
 File 94:JICST-EPlus 1985-2006/Nov W4
 File 95:TEME-Technology & Management 1989-2006/Feb W1
 File 96:FLUIDEX 1972-2006/Feb
 File 99:Wilson Appl. Sci & Tech Abs 1983-2006/Jan
 File 103:Energy SciTec 1974-2006/Jan B2
 File 104:AeroBase 1999-2006/Jan
 File 118:ICONDA-Intl Construction 1976-2006/Jan
 File 134:Earthquake Engineering Abstracts 1966-2006/Jan
 File 144:Pascal 1973-2006/Jan W3
 File 239:Mathsci 1940-2006/Mar
 File 240:PAPERCHEM 1967-2006/Feb W1
 File 248:PIRA 1975-2006/Jan W3
 File 293:Engineered Materials Abstracts 1966-2006/Jan
 File 315:ChemEng & Biotec Abs 1970-2005/Dec
 File 323:RAPRA Rubber & Plastics 1972-2006/Dec
 File 335:Ceramic Abstracts/World Ceramics Abstracts 1966-2006/Jan
 File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec

Set	Items	Description
S1	10044	(CAP OR CAPP????) (3N)METAL???????
S2	182	S1 AND (SI OR SILICON) (2N) (METAL?????? OR W OR TI OR ZR OR TA OR W OR TUNGSTEN OR TANTALUM OR NI OR NICKEL OR COBALT)
S3	8	S1 AND INSULAT????? (5N)TRENCH???????
S4	195	S1 AND (SILICID? OR POLYCID? OR SALICID? OR TISI??? OR ZRS-I??? OR TASI??? OR WSI??? OR NISI??? OR COSI??)
S5	9	S2:S4 AND N(4N)P
S6	1	S2:S4 AND CONDUCTIVITIES
S7	8	S2:S4 AND (N OR P OR TYPE OR TYPES) (3N)CONDUCTIVIT??????
S8	14	S2:S4 AND (N OR P) (3N) (TYPE OR TYPES)
S9	30	S3 OR S5:S8
S10	15	S9 AND TRENCH??????
S11	9	S9 AND FILL???????
S12	15	S10:S11

Logged Off 02/08/06 16:03:32

CAS/STN FILE 'WPIX, JAPIO, HCAPLUS' ENTERED AT 10:43:38 ON 08 FEB 2006

L1 4 SEA ABB=ON PLU=ON (US6300211 OR US664161 OR US4549927)/PN
 L2 SEL PLU=ON L1 1- PN : 13 TERMS

FILE 'DPCI' ENTERED AT 10:44:04 ON 08 FEB 2006

L3 40 SEA ABB=ON PLU=ON L2/PN.D
 L4 SEL PLU=ON L3 1- PRN : 49 TERMS

FILE 'WPIX, JAPIO, HCAPLUS' ENTERED AT 10:44:59 ON 08 FEB 2006

L5 92 SEA ABB=ON PLU=ON L4

FILE 'STNGUIDE' ENTERED AT 10:45:26 ON 08 FEB 2006**FILE 'WPIX, JAPIO, HCAPLUS' ENTERED AT 10:47:35 ON 08 FEB 2006**

E US6664161/PN
 L6 2 SEA ABB=ON PLU=ON US6664161/PN

FILE 'DPCI' ENTERED AT 10:48:25 ON 08 FEB 2006

L7 1 SEA ABB=ON PLU=ON US6664161/PN.D
 L8 1 SEA ABB=ON PLU=ON US2003207532/PN.D
 L9 1 SEA ABB=ON PLU=ON L7 OR L8
 L10 SEL PLU=ON L9 1- PRN : 1 TERM

FILE 'WPIX, JAPIO, HCAPLUS' ENTERED AT 10:49:24 ON 08 FEB 2006

L11 2 SEA ABB=ON PLU=ON L10
 L12 94 SEA ABB=ON PLU=ON L5 OR L11
 L13 92 SEA ABB=ON PLU=ON L12 NOT (L6 OR L1)
 L14 49 SEA ABB=ON PLU=ON L13 AND (LATERAL## OR SIDEWALL OR SIDE##)
 L15 54 SEA ABB=ON PLU=ON L13 AND TRENCH#####
 L16 7 SEA ABB=ON PLU=ON L13 AND GROOV#####
 L17 8 SEA ABB=ON PLU=ON L13 AND RECESS####
 L18 1 SEA ABB=ON PLU=ON L13 AND DEPRESS####
 L19 0 SEA ABB=ON PLU=ON L13 AND INDENT#####
 L20 0 SEA ABB=ON PLU=ON L13 AND GUTTER#####
 L21 10 SEA ABB=ON PLU=ON L13 AND CHANNEL?
 L22 23 SEA ABB=ON PLU=ON L13 AND WALL####
 L23 31 SEA ABB=ON PLU=ON L13 AND (FILL#### OR FULL OR PLUG#####)
 L24 5 SEA ABB=ON PLU=ON L13 AND PARTIAL##
 L25 17 SEA ABB=ON PLU=ON L13 AND PART####
 L26 29 SEA ABB=ON PLU=ON L13 AND PORTION####
 L27 27 SEA ABB=ON PLU=ON L13 AND (ELEVAT#### OR LEVEL#### OR
 HIGH### OR HEIGHT####)
 L28 3 SEA ABB=ON PLU=ON L13 AND DIFFERENT#####
 L29 26 SEA ABB=ON PLU=ON L13 AND (DOPED OR IMPURITY OR DOPANT OR DOPING)
 L30 9 SEA ABB=ON PLU=ON L13 AND CONDUCTIVITY
 L31 5 SEA ABB=ON PLU=ON L13 AND N(3A) (TYPE OR CONDUCT#####)
 L32 3 SEA ABB=ON PLU=ON L13 AND P(3A) (TYPE OR CONDUCT#####)
 L33 14 SEA ABB=ON PLU=ON L13 AND TYPE###
 L34 10 SEA ABB=ON PLU=ON L13 AND (?SALICID? OR ?SILICID? OR ?POLYCID?)
 L35 0 SEA ABB=ON PLU=ON L13 AND (COSI OR WSI OR NISI OR TASI OR TISI)
 L36 0 SEA ABB=ON PLU=ON L13 AND (CO OR COBALT OR W OR TUNGSTEN OR
 NI OR NICKEL OR TA OR TANTALUM OR TI OR TITANIUM) (3A) (SI OR SILICON)
 L37 8 SEA ABB=ON PLU=ON L13 AND (CO OR COBALT OR W OR TUNGSTEN OR
 NI OR NICKEL OR TA OR TANTALUM OR TI OR TITANIUM)
 L38 8 SEA ABB=ON PLU=ON L13 AND REACT#####

FILE 'WPIX, JAPIO, HCAPLUS' ENTERED AT 10:49:24 ON 08 FEB 2006

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L39      17 SEA ABB=ON  PLU=ON  L13 AND ?DIFFUS?
L40      0 SEA ABB=ON  PLU=ON  L13 AND ?MIGRAT?
L41     36 SEA ABB=ON  PLU=ON  L14 AND L15
L42     24 SEA ABB=ON  PLU=ON  L14 AND L23
L43     24 SEA ABB=ON  PLU=ON  L15 AND L23
L44      2 SEA ABB=ON  PLU=ON  US2004-800196/PRN,AP
L45      SEL PLU=ON  L44 1- IC MC ECLA NCL :      17 TERMS
L46    184386 SEA ABB=ON  PLU=ON  L45
L47     27 SEA ABB=ON  PLU=ON  L13 AND L46
L48     80 SEA ABB=ON  PLU=ON  (L14 OR L15 OR L16 OR L17 OR L18 OR L19 OR
L20 OR L21 OR L22 OR L23 OR L24 OR L25 OR L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR
L32 OR L33 OR L34 OR L35 OR L36 OR L37 OR L38 OR L39 OR L40 OR L41 OR L42 OR L43)
L49     26 SEA ABB=ON  PLU=ON  L47 AND L48
L50     20 SEA ABB=ON  PLU=ON  L14 AND L15 AND L23
L51    10108 SEA ABB=ON  PLU=ON  L46 AND REACT#####
L52     737 SEA ABB=ON  PLU=ON  L51 AND (CO OR COBALT OR W OR TUNGSTEN OR
      NI OR NICKEL OR TA OR TANTALUM OR TI OR TITANIUM) (3A) (SI OR
      SILICON)
L53     150 SEA ABB=ON  PLU=ON  L51 AND (COSI OR WSI OR NISI OR TASI OR TISI)
L54    2305 SEA ABB=ON  PLU=ON  L51 AND (?SALICID? OR ?SILICID? OR
      ?POLYCID?)
L55    2593 SEA ABB=ON  PLU=ON  (L52 OR L53 OR L54)
L56     130 SEA ABB=ON  PLU=ON  L55 AND ?TRENCH?
L57      4 SEA ABB=ON  PLU=ON  L55 AND CONDUCTIVITIES
L58     10 SEA ABB=ON  PLU=ON  L55 AND TYPES
L59     22 SEA ABB=ON  PLU=ON  L55 AND (DIFFER##### OR OPPOS#####) (3A) (TY
      PE### OR CONDUCTIVITY)
L60     87 SEA ABB=ON  PLU=ON  L55 AND (N OR NTYPE) (4A) (P OR PTYPE)
L61    151 SEA ABB=ON  PLU=ON  L55 AND (WAFER OR CHIP OR SLAB OR PLATE OR
      BASE OR MICROCHIP OR DIE OR SUBSTRATE) (6A) (LAYERS OR SUBLAYERS
      OR LAMINA#### OR DOUBLE)
L62    283 SEA ABB=ON  PLU=ON  L55 AND (TOP OR TOPP##### OR TOPMOST OR
      ABOVE OR UPPER#####) (6A) (SI OR SILICON OR ?SALICID? OR
      ?SILICID? OR ?POLYCID?)
L63     29 SEA ABB=ON  PLU=ON  L55 AND HIGHER(6A) (SI OR SILICON OR
      ?SALICID? OR ?SILICID? OR ?POLYCID?)
L64      7 SEA ABB=ON  PLU=ON  L55 AND (TOP OR TOPP##### OR TOPMOST OR
      ABOVE OR UPPER##### OR HIGHER) (6A) (COSI OR WSI OR NISI OR TASI OR TISI)
L65     56 SEA ABB=ON  PLU=ON  L55 AND (TOP OR TOPP##### OR TOPMOST OR
      ABOVE OR UPPER##### OR HIGHER) (6A) (CO OR COBALT OR W OR
      TUNGSTEN OR NI OR NICKEL OR TA)
L66     64 SEA ABB=ON  PLU=ON  L55 AND (TOP OR TOPP##### OR TOPMOST OR
      ABOVE OR UPPER##### OR HIGHER) (6A) (TANTALUM OR TI OR TITANIUM)
L67     14 SEA ABB=ON  PLU=ON  L56 AND (L57 OR L58 OR L59 OR L60)
L68     31 SEA ABB=ON  PLU=ON  L56 AND (L61 OR L62 OR L63 OR L64 OR L65
      OR L66 OR L67)
L69     34 SEA ABB=ON  PLU=ON  (L57 OR L58 OR L59 OR L60) AND (L61 OR L62
      OR L63 OR L64 OR L65 OR L66 OR L67)
L70     80 SEA ABB=ON  PLU=ON  (L15 OR L16 OR L17 OR L18 OR L19 OR L20 OR
      L21 OR L22) OR (L24 OR L25 OR L26 OR L27 OR L28 OR L29 OR L30
      OR L31 OR L32 OR L33 OR L34 OR L35 OR L36 OR L37 OR L38 OR L39
      OR L40 OR L41 OR L42 OR L43)
L71    185 SEA ABB=ON  PLU=ON  L49 OR L50 OR (L57 OR L58 OR L59) OR (L63
      OR L64) OR (L67 OR L68 OR L69 OR L70)

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FILE 'WPIX, JAPIO, HCAPLUS' ENTERED AT 10:49:24 ON 08 FEB 2006

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L72      185 SEA ABB=ON   PLU=ON   L71 NOT (L6 OR L1)
L73      65 SEA ABB=ON   PLU=ON   (L62 OR L63 OR L64 OR L65 OR L66) AND L72
L74      13 SEA ABB=ON   PLU=ON   L72 AND L61
L75      56 SEA ABB=ON   PLU=ON   L72 AND (L57 OR L58 OR L59 OR L60)
L76      13 SEA ABB=ON   PLU=ON   L72 AND L61
L77      31 SEA ABB=ON   PLU=ON   L72 AND L56
L78      113 SEA ABB=ON   PLU=ON   L72 AND REACT#####
L79      65 SEA ABB=ON   PLU=ON   L73 AND (L74 OR L75 OR L76 OR L77 OR L78)
L80      13 SEA ABB=ON   PLU=ON   L74 AND (L75 OR L76 OR L77 OR L78)
L81      56 SEA ABB=ON   PLU=ON   L75 AND (L76 OR L77 OR L78)
L82      13 SEA ABB=ON   PLU=ON   L76 AND (L77 OR L78)
L83      31 SEA ABB=ON   PLU=ON   L77 AND L78
L84      65 SEA ABB=ON   PLU=ON   L72 AND (L62 OR L63 OR L64 OR L65 OR L66)
L85      65 SEA ABB=ON   PLU=ON   (L74 OR L75 OR L76 OR L77 OR L78 OR L79 OR
      L80 OR L81 OR L82 OR L83) AND L84
L86      16 SEA ABB=ON   PLU=ON   L85 AND ?TRENCH?
L87      65 SEA ABB=ON   PLU=ON   L85 AND REACT?
L88      47 SEA ABB=ON   PLU=ON   L85 AND METHOD
L89      47 SEA ABB=ON   PLU=ON   L87 AND L88
L90      107 SEA ABB=ON   PLU=ON   (L16 OR L17 OR L18) OR L21 OR L24 OR L28
      OR (L30 OR L31 OR L32) OR (L34 OR L35 OR L36 OR L37 OR L38) OR
      L57 OR L64 OR L74 OR L86 OR L89
L91      107 SEA ABB=ON   PLU=ON   L90 NOT (L1 OR L6)
L92      37 SEA ABB=ON   PLU=ON   L91 AND (LATERAL#### OR SIDEWALL OR WALL
      OR TOP OR UPPER OR HIGHER) (5A) (METAL##### OR SILICID##### OR
      REACT#####)
L93      81 SEA ABB=ON   PLU=ON   (L16 OR L17 OR L18) OR L21 OR L24 OR L28
      OR (L30 OR L31 OR L32) OR (L34 OR L35 OR L36 OR L37 OR L38) OR
      L57 OR L64 OR L92
L94      81 SEA ABB=ON   PLU=ON   L93 NOT (L1 OR L6)
L95      55 SEA ABB=ON   PLU=ON   L94 AND (SIDE### OR SIDEWALL#### OR
      LATERAL#### OR VERTICAL#### OR WALL###)
L96      70 SEA ABB=ON   PLU=ON   L92 OR L95
L97      70 SEA ABB=ON   PLU=ON   L96 NOT (L1 OR L6)
L98      16 SEA ABB=ON   PLU=ON   L97 AND TRENCH##### (5A) (FILL##### OR
      SILICID##### OR INSULAT#####)
L99      48 SEA ABB=ON   PLU=ON   L92 OR L98
L100     48 SEA ABB=ON   PLU=ON   L99 NOT (L1 OR L6)
L101     48 SEA ABB=ON   PLU=ON   L100 NOT L44
L102     0 SEA ABB=ON   PLU=ON   (L62 OR L63 OR L64 OR L65 OR L66) AND L56
      AND (L57 OR L58 OR L59 OR L60) AND L61
L103     3 SEA ABB=ON   PLU=ON   (L62 OR L63 OR L64 OR L65 OR L66) AND L56
      AND (L57 OR L58 OR L59 OR L60)
L104     1 SEA ABB=ON   PLU=ON   (L62 OR L63 OR L64 OR L65 OR L66) AND L56
      AND L61
L105     1 SEA ABB=ON   PLU=ON   (L62 OR L63 OR L64 OR L65 OR L66) AND (L57
      OR L58 OR L59 OR L60) AND L61
L106     2 SEA ABB=ON   PLU=ON   L56 AND (L57 OR L58 OR L59 OR L60) AND L61
L107     7 SEA ABB=ON   PLU=ON   (L103 OR L104 OR L105 OR L106)
L108     7 SEA ABB=ON   PLU=ON   L107 NOT (L1 OR L6 OR L44)

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FILE 'STNGUIDE' ENTERED AT 11:30:44 ON 08 FEB 2006

FILE 'REGISTRY' ENTERED AT 11:32:00 ON 08 FEB 2006

L109 244604 SEA ABB=ON PLU=ON (W OR TA OR TI OR NI OR CO)/ELS,MAC AND
SI/MAC,ELS
L110 4392 SEA ABB=ON PLU=ON L109 AND SILICIDE

FILE 'HCAPLUS' ENTERED AT 11:32:46 ON 08 FEB 2006

L111 25794 SEA ABB=ON PLU=ON L110
L112 192 SEA ABB=ON PLU=ON L111 AND TRENCH##### AND (VERTICAL### OR
SIDE### OR LATERAL#### OR WALL### OR SIDEWALL####)
L113 10 SEA ABB=ON PLU=ON L112 AND (CONDUCTIVITIES OR SUBSTRATES OR
WAFERS OR CHIPS OR DIE OR MICROCHIPS)/AB
L114 5 SEA ABB=ON PLU=ON L112 AND METAL#####(4A) FILL#####
L115 221 SEA ABB=ON PLU=ON L111 AND METAL#####(4A) (VERTICAL### OR
SIDE### OR LATERAL#### OR WALL### OR SIDEWALL####)
L116 59 SEA ABB=ON PLU=ON L111 AND METAL#####(6A) TRENCH#####
L117 303 SEA ABB=ON PLU=ON L111 AND METAL#####(6A) (VERTICAL### OR
SIDE### OR LATERAL#### OR WALL### OR SIDEWALL####)
L118 7 SEA ABB=ON PLU=ON L112 AND METAL#####(6A) FILL#####
L119 7 SEA ABB=ON PLU=ON L116 AND L117
L120 12 SEA ABB=ON PLU=ON L118 OR L119
L121 12 SEA ABB=ON PLU=ON L120 NOT L113
D ALL HITSTR TOT
L122 98 SEA ABB=ON PLU=ON (L112 OR L113 OR L114 OR L115 OR L116 OR
L117) AND (HOLE OR OPENING OR GROOV#####)
L123 556 SEA ABB=ON PLU=ON L111 AND (FILL#### OR VERTICAL### OR
SIDE### OR LATERAL#### OR WALL### OR SIDEWALL####) (4A) (HOLE OR
OPENING OR GROOV##### OR RECESS##### OR INDENT#####)
L124 553 SEA ABB=ON PLU=ON L123 NOT L121
L125 553 SEA ABB=ON PLU=ON L124 NOT L113
L126 15 SEA ABB=ON PLU=ON L125 AND N(6A) P
L127 0 SEA ABB=ON PLU=ON L125 AND CONDUCTIVITIES/AB
L128 1 SEA ABB=ON PLU=ON L125 AND TYPES/AB
L129 15 SEA ABB=ON PLU=ON (L126 OR L127 OR L128)

CAS/STN FILE 'WPIX, JAPIO, HCAPLUS' ENTERED AT 13:51:51 ON 08 FEB 2006

L1 3 SEA ABB=ON PLU=ON JP2004134586/PN
 L2 SEL PLU=ON L1 1- IC NCL FTERM : 129 TERMS
 L3 206001 SEA ABB=ON PLU=ON L2
 L4 4893 SEA ABB=ON PLU=ON L3 AND FILL#####(3A) TRENCH#####
 L5 206001 SEA ABB=ON PLU=ON L2
 L6 0 SEA ABB=ON PLU=ON L5 AND TRENCHFILL?
 L7 206001 SEA ABB=ON PLU=ON L2
 L8 16883 SEA ABB=ON PLU=ON L7 AND ?SILICID?
 L9 5573 SEA ABB=ON PLU=ON (L4 OR L8) AND ((LATERAL### OR VERTICAL##)(2A) (SURFACE OR
 WALL### OR SIDE### OR TRENCH#####) OR SIDEWALL### OR SIDE##(2A) (WALL### OR SURFACE## OR
 TRENCH##))
 L10 195 SEA ABB=ON PLU=ON L4 AND L8
 L11 264 SEA ABB=ON PLU=ON (L9 OR L10) AND TRENCH#####(3A) (UPPER OR TOP##### OR
 HIGHER)
 L12 816 SEA ABB=ON PLU=ON (L9 OR L10) AND TRENCH#####(6A) (METAL##### OR REFRACTORY
 OR SI OR SILICID? OR SILICON)
 L13 76186 SEA ABB=ON PLU=ON FILL#####(3A) (INSULAT##### OR DIELEC#####
 OR OXIDE OR SIO OR SIO2 OR DIOXIDE OR SILICA)
 L14 866 SEA ABB=ON PLU=ON (L9 OR L10) AND L13
 L15 55 SEA ABB=ON PLU=ON L11 AND L12 AND L14
 L16 195 SEA ABB=ON PLU=ON L4 AND L8
 L17 11 SEA ABB=ON PLU=ON L15 AND L16

FILE 'STNGUIDE' ENTERED AT 14:01:48 ON 08 FEB 2006

FILE 'WPIX, JAPIO, HCAPLUS' ENTERED AT 14:08:24 ON 08 FEB 2006

L18 2599 SEA ABB=ON PLU=ON (?SALICID? OR ?SILICID? OR ?POLYCID? OR NISI OR TISI OR
 COSI OR TASI OR ZRSI OR WSI) (4A) (TOP##### OR UPPER##### OR HIGHER OR ABOVE)

FILE 'WPIX, JAPIO, HCAPLUS' ENTERED AT 14:09:01 ON 08 FEB 2006

L19 555 SEA ABB=ON PLU=ON (?SALICID? OR ?SILICID? OR ?POLYCID? OR
 NISI OR TISI OR COSI OR TASI OR ZRSI OR WSI) (8A) TRENCH?
 L20 7826 SEA ABB=ON PLU=ON TRENCH#####(8A) (TOP##### OR UPPER#####
 OR HIGHER OR ABOVE)
 L21 22 SEA ABB=ON PLU=ON L18 AND L19 AND L20
 L22 21 SEA ABB=ON PLU=ON L21 NOT L17
 L23 6 SEA ABB=ON PLU=ON L22 AND (TOP##### OR UPPER##### OR
 HIGHER OR ABOVE)/TI

FILE 'STNGUIDE' ENTERED AT 14:12:26 ON 08 FEB 2006

FILE 'WPIX, JAPIO, HCAPLUS' ENTERED AT 14:13:56 ON 08 FEB 2006

L24 174873 SEA ABB=ON PLU=ON (TOP##### OR UPPER##### OR HIGHER OR
 ABOVE) (8A) (INSULAT##### OR DIELEC##### OR OXIDE OR SIO OR SIO2
 OR DIOXIDE OR SILICA)
 L25 13 SEA ABB=ON PLU=ON L22 AND L24
 L26 15 SEA ABB=ON PLU=ON L23 OR L25

FILE 'STNGUIDE' ENTERED AT 14:15:09 ON 08 FEB 2006

FILE 'DPCI' ENTERED AT 15:15:04 ON 08 FEB 2006
 E JP2004134586/PN.D

FILE 'CAPLUS' ENTERED AT 15:15:15 ON 08 FEB 2006
 E JP2004134586/RE

CAS/STN FILE 'WPIX' ENTERED AT 07:55:59 ON 09 FEB 2006

L1 7 SEA ABB=ON PLU=ON (US6300211 OR US6654161 OR US4549927 OR
US5071782 OR US5576567 OR US5874760 OR US5929477)/PN

FILE 'STNGUIDE' ENTERED AT 07:56:00 ON 09 FEB 2006

FILE 'WPIX' ENTERED AT 07:56:57 ON 09 FEB 2006

L2 6 SEA ABB=ON PLU=ON (US5990509 OR US6034389 OR US6096598 OR
US6114725 OR US6184091 OR US6218236)/PN

FILE 'STNGUIDE' ENTERED AT 07:56:59 ON 09 FEB 2006

FILE 'WPIX' ENTERED AT 07:57:54 ON 09 FEB 2006

L3 6 SEA ABB=ON PLU=ON (US6355520 OR US6504210 OR US6537870 OR
US6555862 OR US6579759 OR US6593613)/PN

FILE 'STNGUIDE' ENTERED AT 07:57:56 ON 09 FEB 2006

FILE 'WPIX' ENTERED AT 07:58:36 ON 09 FEB 2006

L4 1 SEA ABB=ON PLU=ON (US2003001200)/PN

FILE 'STNGUIDE' ENTERED AT 07:58:37 ON 09 FEB 2006

FILE 'WPIX' ENTERED AT 07:58:56 ON 09 FEB 2006

L5 1 SEA ABB=ON PLU=ON (US2004113207)/PN

FILE 'STNGUIDE' ENTERED AT 07:58:57 ON 09 FEB 2006

FILE 'WPIX' ENTERED AT 07:59:19 ON 09 FEB 2006

L6 21 SEA ABB=ON PLU=ON (L1 OR L2 OR L3 OR L4 OR L5)

L7 SEL PLU=ON L6 1- PN : 86 TERMS

FILE 'DPCI' ENTERED AT 07:59:31 ON 09 FEB 2006

L8 292 SEA ABB=ON PLU=ON L7/PN.D

L9 SEL PLU=ON L8 1- PN : 873 TERMS

L10 101 SEA ABB=ON PLU=ON L8 AND TRENCH?

L11 14 SEA ABB=ON PLU=ON L8 AND FILL?

L12 36 SEA ABB=ON PLU=ON L8 AND INSULAT?

L13 3 SEA ABB=ON PLU=ON L8 AND (SALICID? OR SILICID? OR POLYCID?)

L14 0 SEA ABB=ON PLU=ON L8 AND CONDUCTIVITIES

L15 1 SEA ABB=ON PLU=ON L8 AND DOUBLE

L16 0 SEA ABB=ON PLU=ON L8 AND LAYERED

L17 8 SEA ABB=ON PLU=ON L8 AND LAYERS

L18 34 SEA ABB=ON PLU=ON L8 AND (UPPER OR ABOVE OR LEVEL OR HIGH OR
HIGHER OR HEIGHT OR ELEVATION)

L19 111 SEA ABB=ON PLU=ON L8 AND (LATERAL## OR WALL#### OR SIDEWALL##
OR SIDE### OR VERTICAL##)

L20 198 SEA ABB=ON PLU=ON (L10 OR L11 OR L12 OR L13 OR L14 OR L15 OR
L16 OR L17 OR L18 OR L19)

L21 78 SEA ABB=ON PLU=ON L8 AND SUBSTRATE

L22 40 SEA ABB=ON PLU=ON L10 AND L19

L23 32 SEA ABB=ON PLU=ON L10 AND L21

FILE 'DPCI' ENTERED AT 07:59:31 ON 09 FEB 2006

L24 28 SEA ABB=ON PLU=ON L19 AND L21
 L25 133 SEA ABB=ON PLU=ON (L11 OR L12 OR L13 OR L14 OR L15 OR L16 OR
 L17 OR L18) OR (L22 OR L23 OR L24)
 L26 SEL PLU=ON L25 1- PN : 419 TERMS

CAS/STN FILE 'WPIX' ENTERED AT 11:55:33 ON 09 FEB 2006

L1 4 SEA ABB=ON PLU=ON (US4725562 OR US4717682 OR US4589193 OR
 US4549927)/PN
 L2 SEL PLU=ON L1 1- PN : 18 TERMS

FILE 'DPCI' ENTERED AT 11:56:06 ON 09 FEB 2006

L3 88 SEA ABB=ON PLU=ON L2/PN.D
 L4 0 SEA ABB=ON PLU=ON L3 AND (CONDUCTIVITIES)
 L5 2 SEA ABB=ON PLU=ON L3 AND N AND P
 L6 0 SEA ABB=ON PLU=ON L3 AND TYPES
 L7 3 SEA ABB=ON PLU=ON L3 AND SUBSTRATES
 L8 9 SEA ABB=ON PLU=ON L3 AND LAYERS
 L9 51 SEA ABB=ON PLU=ON L3 AND TRENCH?
 L10 12 SEA ABB=ON PLU=ON L3 AND FILL?
 L11 4 SEA ABB=ON PLU=ON L3 AND (SALICID? OR POLYCID? OR SILICID?)
 L12 5 SEA ABB=ON PLU=ON L3 AND INSULATOR
 L13 5 SEA ABB=ON PLU=ON L3 AND INSULATING
 L14 9 SEA ABB=ON PLU=ON L3 AND LAYERS
 L15 0 SEA ABB=ON PLU=ON L3 AND LAYERED
 L16 0 SEA ABB=ON PLU=ON L3 AND LAYERING
 L17 3 SEA ABB=ON PLU=ON L3 AND (OPPOS? OR DIFFER?)
 L18 26 SEA ABB=ON PLU=ON L3 AND (WALL#### OR SIDE##### OR
 LATERAL? OR VERTICAL?)
 L19 71 SEA ABB=ON PLU=ON (L4 OR L5 OR L6 OR L7 OR L8 OR L9 OR L10
 OR L11 OR L12 OR L13 OR L14 OR L15 OR L16 OR L17 OR L18)
 L20 SEL PLU=ON L19 1- PN : 181 TERMS

FILE 'WPIX, JAPIO, HCAPLUS, EPFULL, PCTFULL' ENTERED AT 12:00:07 ON 09 FEB 2006

L21 170 SEA ABB=ON PLU=ON L20
 L22 92 SEA ABB=ON PLU=ON L21 AND TRENCH#####(4A) (FILL##### OR
 INSULAT#### OR ISOLAT#### OR METAL##### OR SILICID? OR
 POLYCID? OR SALICID? OR REACT#####)
 L23 14 SEA ABB=ON PLU=ON L21 AND METAL#####(6A) (SILICID? OR
 POLYCID? OR SALICID? OR REACT#####)
 L24 7 SEA ABB=ON PLU=ON L21 AND METAL#####(6A) FILL#####
 L25 2 SEA ABB=ON PLU=ON L21 AND METAL#####(6A) REACT#####
 L26 8 SEA ABB=ON PLU=ON L21 AND (METAL##### OR SILICID? OR
 POLYCID? OR SALICID? OR REFRACTORY) (6A) (UPPER OR TOP##### OR
 CAP#### OR HIGHER OR ELEVATION OR LEVEL OR HEIGHT)
 L27 0 SEA ABB=ON PLU=ON L21 AND (CONDUCTIVITIES)
 L28 4 SEA ABB=ON PLU=ON L21 AND (OPPOS#### OR DIFFER#####) (4A)
 CONDUCTIVITY
 L29 17 SEA ABB=ON PLU=ON L22 AND (L23 OR L24 OR L25 OR L26 OR L27 OR L28)
 L30 6 SEA ABB=ON PLU=ON L23 AND (L24 OR L25 OR L26 OR L27 OR L28)
 L31 3 SEA ABB=ON PLU=ON L24 AND (L25 OR L26 OR L27 OR L28)
 L32 2 SEA ABB=ON PLU=ON L25 AND (L26 OR L27 OR L28)
 L33 1 SEA ABB=ON PLU=ON L26 AND L28
 L34 23 SEA ABB=ON PLU=ON (L23 OR L24 OR L25 OR L26 OR L27 OR L28 OR
 L29 OR L30 OR L31 OR L32 OR L33)

Query/Command : ..his

File : FAMPAT

SS Results

1 1 (1) ..FAM JP2004134586/PN

Search statement 2

Back

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L121 ANSWER 3 OF 12 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2004:352103 HCAPLUS

DN 140:367018

ED Entered STN: 30 Apr 2004

TI Semiconductor devices and fabrication of semiconductor devices

IN Shimomura, Narakazu

PA Sharp Corp., Japan

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004134586	A2	20040430	JP 2002-297720	20021010
PRAI	JP 2002-297720		20021010		

AB The title semiconductor devices have a semiconductor substrate with component isolation trenches which are buried with an insulator film, wherein a portion of the **trench sidewalls** is coated with a refractory **metal** silicide film. The title fabrication involves (1) filling a trench with an insulator film to be leveled on the substrate surface, (2) forming a dopant diffusion layer on the surface of the substrate, (3) removing a surface layer of the insulator in the trench to expose a portion of the **trench sidewalls**, (4) depositing a refractory **metal** film on the substrate, and (5) annealing to give a refractory metal silicide film on the dopant-diffusion layer and on a portion of the trench sidewalls. The refractory metal silicide may be CoSix, NiSix, TiSix, or ZrSix. The formation of the refractory **metal** silicide film on the **sidewalls** of the trenches effectively provides a self-alignment contact in prevention of characteristic deterioration which is otherwise caused by elec. current increased.

IT **11104-62-4P**, Cobalt silicide **12738-91-9P**, Titanium silicide **39467-10-2P**, Nickel silicide

RL: DEV (Device component use); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)
(refractory metal silicide film contact by self-alignment;
semiconductor devices and fabrication of semiconductor devices)

- 10/10/02 JP
priority

- 4/30/04
JP
pub

3/11/04
U.S.

L101 ANSWER 2 OF 48 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2005-584768 [60] WPIX

CR 1995-124873 [17]; 2005-584769 [60]

DNN N2005-480105 DNC C2005-176490

TI Manufacture of semiconductor device, e.g. TFT used in electro-optical device, e.g. monolithic type active matrix circuit involves forming high resistance region by adding impurity to first region.

DC L03 U11 U12

IN KONUMA, T; OHNUMA, H; SUGAWARA, A; SUZAWA, H; SUZUKI, A; TAKEMURA, Y;

UEHARA, Y; UOCHI, H; YAMAGUCHI, N; ZHANG, H

PA (SEME) SEMICONDUCTOR ENERGY LAB

CYC 4

PI EP 1564799 A2 20050817 (200560)* 27 H01L021-316

R: DE FR GB NL

ADT EP 1564799 A2 Div ex EP 1994-306862 19940920, EP 2005-6906 19940920

FDT EP 1564799 A2 Div ex EP 645802

PRAI JP 1993-284287 19931019; JP 1993-256563 19930920;

JP 1993-256565 19930920; JP 1993-256567 19930920

IC ICM H01L021-316

ICS H01L021-336; H01L021-84; H01L029-45; H01L029-786

AB EP 1564799 A UPAB: 20050920

NOVELTY - Semiconductor device is manufactured by forming a high resistance region by adding an impurity to a first region for giving conductivity type at a first concentration.

DETAILED DESCRIPTION - Manufacture of a semiconductor device involves forming a semiconductor film having silicon over a substrate (101), where the semiconductor film includes a first region to become a high resistance region and second region to become a drain region adjacent to the high resistance region; forming a gate insulating film (104) over the semiconductor film; forming a gate electrode (105) over the semiconductor film with the gate insulating film, where the second region of the semiconductor film is exposed from the gate insulating film; forming a metal film to cover the semiconductor film, the gate insulating film and the gate electrode, where the metal film contacts the second region of the semiconductor film so that a metal **silicide** layer is formed by a **reaction** between the metal film and the second region of the semiconductor film; forming the high resistance region by adding an impurity to the first region for giving conductivity type at a first concentration; and forming a drain region by adding an impurity to the second region for giving the conductivity type at a second concentration **higher** than the first concentration. The **metal silicide** layer is not formed on the first region.

USE - For manufacture of a semiconductor device, e.g. thin film transistor used in electro-optical device, e.g. monolithic type active matrix circuit.

ADVANTAGE - Produces thin film transistor (TFT) with high resistivity region. It reduces doping or annealing steps. It also reduces the reverse direction leak current and increases the dielectric strength.

DESCRIPTION OF DRAWING(S) - The figure shows a cross-sectional view of manufacturing a TFT.

Substrate 101

Base insulating film 102

Active layer 103

Insulating film 104

Gate electrode 105

Dwg.1A/13

TECH EP 1564799 A2 UPTX: 20050920

TECHNOLOGY FOCUS - ELECTRONICS - Preferred Component: The impurity is an **N** or **P**-type impurity. Preferred **Method**: The metal **silicide** layer is formed after completing the formation of the metal film, preferably nickel film. The irradiation with light is conducted by using laser or lamp annealing. The nickel **silicide** layer is not formed on the first region.

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Material: The metal film comprises a metal from titanium, nickel, molybdenum, tungsten, platinum or palladium.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Material: The metal film

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comprises a metal from titanium, nickel, molybdenum, tungsten, platinum or palladium.

L101 ANSWER 3 OF 48 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN

AN 2005-561900 [57] WPIX

DNN N2005-460570 DNC C2005-169664

TI Fabrication of MOSFET device on semiconductor substrate by sequentially forming gate insulator, conductive and semiconductor layers and defining conductive gate structure and overlying semiconductor shape on the insulator layer.

DC L03 U11

IN BERA, L K; MATHEW, S

PA (SCTE-N) AGENCY SCI TECHNOLOGY & RES

CYC 1

PI US 2005164460 A1 20050728 (200557)* 8 H01L021-00

ADT US 2005164460 A1 US 2004-763304 20040123

PRAI US 2004-763304 20040123

IC ICM H01L021-00

ICS H01L021-336

AB US2005164460 A UPAB: 20050907

NOVELTY - MOSFET device is fabricated on a semiconductor substrate by sequentially forming a gate insulator layer on a substrate, a conductive layer, and a semiconductor layer. A conductive gate structure and an overlying semiconductor shape are defined on the gate insulator layer. Portion of the gate insulator layer not covered by the conductive gate structure is then removed.

DETAILED DESCRIPTION - Fabrication of MOSFET device on a semiconductor substrate (1) involves:

(A) forming a gate insulator layer (2b) on the substrate;

(B) forming a conductive layer on the gate insulator layer;

(C) forming a semiconductor layer on the conductive layer;

(D) defining a conductive gate structure and an overlying semiconductor shape (4b), on the gate insulator layer;

(E) removing portion of the gate insulator layer not covered by the conductive gate structure;

(F) forming a first doped region in an area of the substrate not covered by the conductive gate structure;

(G) forming composite insulator spacers (7, 8) on the sides of the conductive gate structure and on the sides of the semiconductor shape;

(H) forming a second doped region in an area of the substrate not covered by the conductive gate structure, or by the composite insulator spacers;

(I) forming a metal layer (10a);

(J) performing an anneal procedure to form first metal **silicide** regions from an overlying first portion of the metal layer and from a **top** portion of the second doped region, and to form a second metal **silicide** region on the conductive gate structure from an overlying second portion of the metal layer via total consumption of the semiconductor shape, while third portions of the metal layer located on the composite insulator spacers remain unreacted; and

(K) removing unreacted portions of the metal layer located on the composite insulator spacers.

USE - For fabricating MOSFET e.g. CMOS device on a semiconductor substrate (claimed).

ADVANTAGE - The metal gate structure featuring overlying metal **silicide** shape and overlying composite insulator **sidewall** spacers can be subjected to **salicide** wet etching without the risk of metal gate erosion because of amorphous silicon shape defined on the underlying metal gate structure.

DESCRIPTION OF DRAWING(S) - The figure is a cross-section showing key stage used to fabricate the MOSFET device.

Substrate 1

Gate insulator layer 2b

Overlying semiconductor shape 4b

Spacers 7, 8

Meta layer 10a

Dwg.6/8

TECH US 2005164460 A1UPTX: 20050907

TECHNOLOGY FOCUS - ELECTRONICS - Preferred Component: The MOSFET device is an N- or P-channel MOSFET device. It is a complimentary metal oxide semiconductor (CMOS) device having with both

N-channel and P-channel MOSFET devices. Preferred

Method: The conductive layer is obtained via physical vapor deposition procedures. The semiconductor layer is obtained via low pressure chemical vapor deposition (LPCVD) or plasma enhanced chemical vapor deposition (PECVD) procedure. The conductive gate structure and the overlying semiconductor shape are defined via an anisotropic **reactive** ion etch procedure using chlorine as an etchant for the semiconductor layer and for the conductive layer. The metal layer is obtained via physical vapor deposition procedures. The anneal procedure used to form metal **silicide** regions is a rapid thermal anneal procedure performed in an inert ambient at 450-900 degreesC for 30-400 seconds. A second metal **silicide** region is formed from a **top** portion of the semiconductor shape, leaving a bottom portion of the semiconductor shape located overlying the conductive gate structure. It is formed consuming all of the semiconductor shape. Preferred Parameter: The gate insulator layer is 15-500Angstrom thick. The conductive layer is 800-2,000Angstrom thick. The semiconductor layer is 200-1,000Angstrom thick. The composite insulator spacers comprise an underlying silicon oxide shape at a thickness of 50-250Angstrom, and an overlying silicon nitride shape at a thickness of 300-1,000Angstrom. The metal layer is 50-500Angstrom thick.

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Material: The gate insulator layer is a high dielectric constant (high k) layer of **silicon nitride, tantalum oxide, silicon oxynitride, zirconium oxide, hafnium oxide, or aluminum oxide**, all has a dielectric constant greater than 4. The conductive layer is a refractory metal e.g. tungsten or molybdenum. The semiconductor layer is an amorphous silicon layer. The metal layer is titanium, cobalt, nickel, zirconium, tantalum or nickel-platinum. Unreacted portions of the metal layer are removed via a wet procedure using a solution containing hydrochloric acid-hydrogen peroxide-ammonium hydroxide-sulfuric acid.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Material: The gate insulator layer is a high dielectric constant (high k) layer of **silicon nitride, tantalum oxide, silicon oxynitride, zirconium oxide, hafnium oxide, or aluminum oxide**, all has a dielectric constant greater than 4. The conductive layer is a refractory metal e.g. tungsten or molybdenum. The semiconductor layer is an amorphous silicon layer. The metal layer is titanium, cobalt, nickel, zirconium, tantalum or nickel-platinum. Unreacted portions of the metal layer are removed via a wet procedure using a solution containing hydrochloric acid-hydrogen peroxide-ammonium hydroxide-sulfuric acid.